DOCUMENT RESUME

ED 367 285 IR 016 540

AUTHOR	Mowe, Richard
TITLE	Evaluating Technology Integration in the Elementary School: A Site-Based Approach.
INSTITUTION	International Society for Technology in Education, Eugene, OR.
REPORT NO	ISBN-1-56484-054-9
PUB DATE	93
NOTE	55p.; For 1990 edition, see ED 323 994. Cover title varies.
AVAILABLE FROM	International Society for Technology in Education, 1787 Agate St., Eugene, OR 97403-1923.
PUB TYPE	Guides - Non-Classroom Use (055) -- Tests/Evaluation Instruments (160)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Computer Assisted Instruction; Computer Graphics; Computer Software; Courseware; Databases; Desktop Publishing; *Educational Technology; Elementary Education; *Evaluation Methods; *Formative Evaluation; Integrated Curriculum; Microcomputers; *Program Evaluation; Programming; Questionnaires; Spreadsheets; Telecommunications; Word Processing

ABSTRACT

This book enables educators at the elementary level to conduct formative evaluations of their technology programs in minimum time. Most of the technology is computer related, including word processing, graphics, desktop publishing, spreadsheets, databases, instructional software, programming, and telecommunications. The design of the book is aimed at evaluating the use of technology as it is integrated into other standard curricular areas, such as math or language arts, but the focus is on technology goals rather than curriculum goals. The book is divided into five chapters. The first provides an overview of technology and program evaluation. The second suggests a way to plan for the evaluation. The third explains how to collect the data to describe the existing technology program. The fourth explains how to interpret the data. The final chapter assists in the presentation of the evaluation report. The appendix contains the evaluation questionnaires. (TMK)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 367 285

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

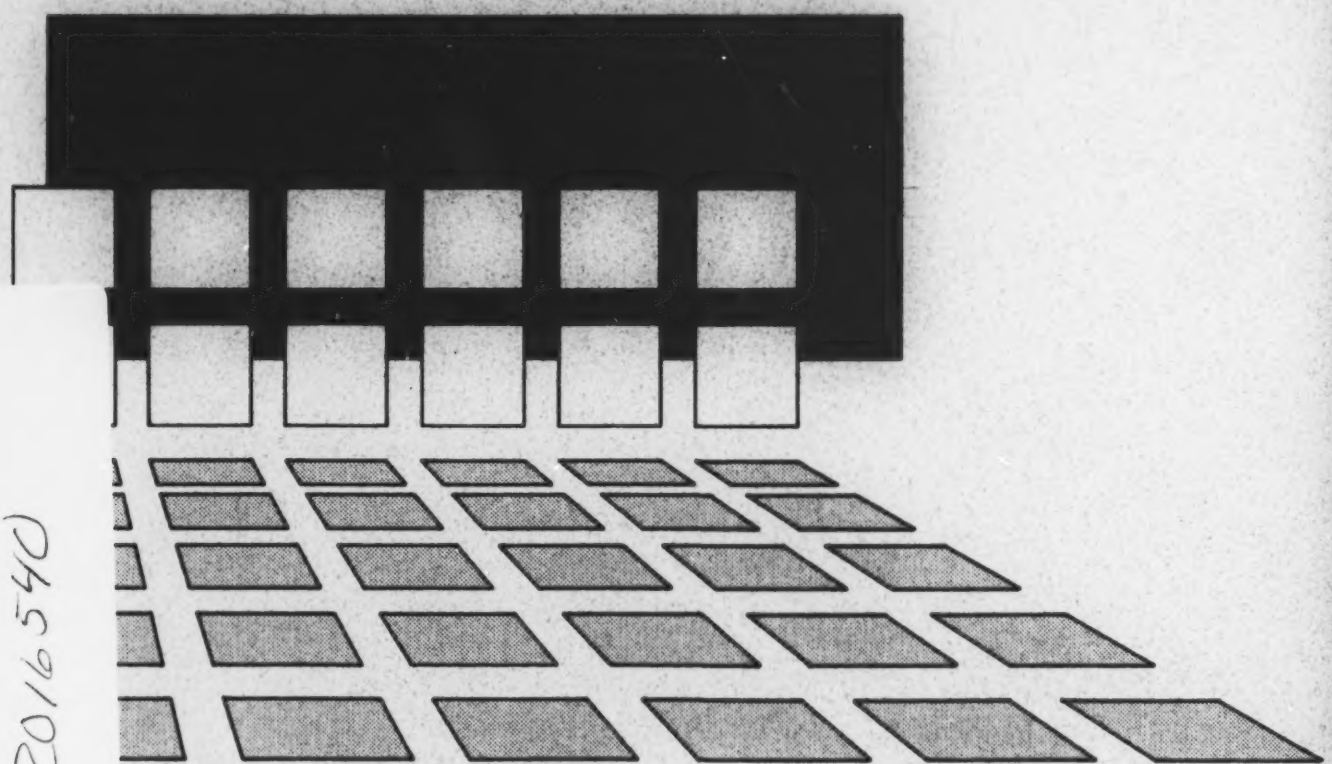
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN **OTHER THAN PAPER COPY** HAS BEEN GRANTED BY
D. Moursund

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

Evaluating Technology Integration in the Elementary School: A Step by Step Guide



1120165 40

ISTE Publications

By Richard Mowe

BEST COPY AVAILABLE

About the Author

Richard Mowe is an assistant professor of computer science at St. Cloud State University. Areas of specialization are microcomputer studies and desktop publishing. Before completing his Ph.D. degree at the University of Oregon, Mowe taught math, science, and computer literacy at the elementary and high school levels. Other colleges and universities attended include Chapman College in California and the University of Washington. Mowe has authored and coauthored several books and articles in the computer education field and is currently concentrating on program evaluation of computer education programs.

Project Coordinator
Jean Hall
Copy Editor
Christy McMannis, The Electronic Page
Cover Design
Percy Franklin
Production
Christy McMannis, The Electronic Page

© International Society for Technology in Education, 1993
1787 Agate Street, Eugene, Oregon 97403-1923
Order Desk: 800/336-5191
Phone: 503/346-4414
Fax: 503/346-5890
CompuServe: 70014,2117
Internet: ISTE@ Oregon.uoregon.edu

ISBN 1-56484-054-9

BEST COPY AVAILABLE

Evaluating Technology Integration in the Elementary School

A Site-Based Approach

Richard Mowe

© International Society for Technology in Education, 1993

Table of Contents

Preface v

Chapter 1 Overview 1
- Formative Evaluation 1

Chapter 2 Planning the Evaluation 3
- Questionnaires 3
- Questionnaire Choices 4
- Evaluator Roles 6
- The Schedule 6

Chapter 3 Collecting the Information 9
- The Program Description 9
- What Are Your Technology Goals? 12
- What Technology Skills and Knowledge Does Your Staff Have? 16
- What Is Your Plan? 18
- Have You Implemented Activities as Planned? What Progress Have You Made Toward Meeting Goals? 19
- What Are the Strengths and Weaknesses of Your Program? 20

Chapter 4 Analyzing the Data 21
- Program Description Questionnaire 21
- Goal Questionnaire 21
- Staff Questionnaire 22
- Activity Implementation and Goal Attainment Questionnaire 23
- Strengths and Weaknesses Questionnaire 23

Chapter 5 Reporting the Results 25
- Reasons for the Evaluation 25
- Program Functioning 25
- Evaluation Questions 26
- Answers to Evaluation Questions 26
- Recommendations 26

Appendix Evaluation Questionnaires 27
- Planning Questionnaire 29
- Program Description Questionnaire 31
- Goal Questionnaire 37
- Staff Questionnaire 39
- Staff Compilation Form 41
- Plan Questionnaire 43
- Activity Implementation and Goal Attainment Questionnaire 45
- Strengths and Weaknesses Questionnaire 47
- Strengths and Weaknesses Compilation Form 49

Preface

As the availability of computers and other technology in schools has increased rapidly in recent years, technology in education programs has become commonplace. The programs, both planned and unplanned, could be improved if systematic means existed for their evaluation. Often, when such program evaluation is contemplated, the evaluators find they have little time for and little knowledge of program evaluation techniques for technology in education.

I wrote this book, an evolution of my dissertation research, to enable educators at the elementary level to conduct formative evaluations of their technology programs in a minimum of time. Formative evaluation is the assessment of a program for the purpose of improving the program. No formal knowledge of program evaluation is required. Principals, technology coordinators, media specialists, and teachers who use technology will find this book helpful and easy to use.

The book was originally published by the International Society for Technology in Education in 1990 under the title *Evaluating Computer Integration in the Elementary School: A Step by Step Guide*. This new edition focuses on technology integration. A short discussion of evaluation roles has been included.

The book is divided into five chapters. The first provides an overview of technology and program evaluation. The second suggests a way to plan for the evaluation. The third explains how to collect the data to describe the existing technology program. The fourth explains how to interpret the data. The final chapter assists in the presentation of the evaluation report. The appendix contains the evaluation questionnaires.

I encourage you to form an evaluation team composed of educators, parents, and other volunteers to carry out the work described in this book. Spreading the workload makes the job easier for everybody and provides a wider base of support for implementing the evaluation recommendations.

Richard Mowe
July 1993

Chapter 1
Overview

This book focuses on the evaluation of the use of technology in the elementary school. Most of the technology is computer related. Computer tools include word processing, graphics, desktop publishing, spreadsheets, and databases. Instructional software, programming, and telecommunications also are included. Technology has a strong visual component in video and multimedia.

The book is designed for evaluating the use of technology as it is integrated into other standard curricular areas, such as math or language arts, but the focus is on technology goals rather than curriculum goals. The book is not designed for evaluation of school programs that focus on individual technology-related courses.

Formative Evaluation

Formative evaluation is the process of describing a program and making suggestions for improvement. Formative evaluation should start early in the life of a program and continue periodically. Early on, program evaluation needs may focus on developing goals and a plan for meeting them. Later, the focus may be on whether the plan has been followed and goals have been met.

Once the program is fully established, a different type of evaluation, called summative evaluation, takes place. The purpose of summative evaluation is to describe the effects of a program on student learning to decide to continue or halt the program. This guide does not cover summative evaluation.

Steps of Formative Evaluation

The steps of formative evaluation are planning the evaluation, collecting the information, interpreting the information, and reporting the results. Guidance for each step is provided in a separate chapter.

Planning the Evaluation (Chapter 2)

The plan is the blueprint for carrying out the evaluation. This book contains a series of questionnaires used for gathering program data. You will first plan which questionnaires to use. Then you will decide who will

gather the data and what schedule to follow for data gathering and for the evaluation in general.

Collecting the Information (Chapter 3)

The information gathered may be in the form of program documents, surveys, interviews, and tests. This book uses survey questionnaires. Concerns and issues are discussed for each questionnaire, and potential problems are listed along with possible solutions.

Interpreting the Information (Chapter 4)

Once the questionnaires have been returned, they must be summarized so conclusions can be drawn. This book provides the means for analyzing individual questionnaires and the relationships among the combined questionnaires.

Reporting the Results (Chapter 5)

The report provides a summary of the program evaluation. After describing the program and the evaluation itself, the report lists the findings and recommendations. This book suggests a report format and gives helpful hints.

Chapter 2

Planning the Evaluation

To plan the evaluation, first choose the appropriate questionnaires. Next, determine who will fill various evaluation roles and who will complete the questionnaires. Will one person complete the questionnaires on behalf of the rest of the staff, or will a number of people participate? Finally, compile a schedule for planning, data collection, interpretation, and reporting.

Questionnaires

The appendix of this book contains a number of different questionnaires designed to help answer a wide range of formative evaluation questions.

- ***Planning.*** This questionnaire helps evaluation participants schedule choice of questionnaires, duties for evaluation personnel, and a time schedule. It is appropriate for all evaluations.
- ***Program Description.*** This questionnaire helps evaluators gather background information and a concise description of the current technology program. It is appropriate for all evaluations.
- ***Goal.*** Evaluators examine program goals on a case-by-case basis to see how well supported the goals are and how important they are. This questionnaire is important in an evaluation to update technology goals.
- ***Staff Questionnaire and Staff Compilation Form.*** Use of these forms help produce a composite picture of the staff's knowledge of technology and of the types of technology use in classrooms. These forms are useful for an evaluation examining staff training needs.
- ***Plan.*** This questionnaire assists evaluators in developing a strategy for meeting technology goals. The questionnaire is appropriate for schools that have an outdated or no technology plan.
- ***Activity Implementation and Goal Attainment.*** This questionnaire helps verify that skills leading to goal attainment have been taught and/or a goal has been attained. It is useful for an evaluation that examines progress in implementing or achieving goals.

- ***Strengths and Weaknesses Questionnaire and Strengths and Weaknesses Compilation Form.*** This questionnaire examines general perceptions of the technology program apart from goal achievement. It is appropriate for all evaluations. It is useful to give this questionnaire to representatives of different concerned groups to get a broad perspective of the technology integration program.

Questionnaire Choices

The decision regarding which questionnaire to use depends on the stage of development of your technology program and your information needs. Typically, a technology program evolves through three stages of development.

Planning Stage

In the planning stage, a school tries various technology strategies but has not settled on the best technology uses. The school may lack technology goals, or the goals may be too vague to provide specific guidance. The school may have a technology plan that is outdated and in need of revision, or no plan at all.

In the planning stage, a school needs a building technology plan. This book can assist in providing the data needed to write a plan. It first helps in writing a description of the current program. Whatever your school is currently doing *is* a plan, even though it may not be in written form. Regardless of its status, it is a program that can be built upon. This book can assist you in writing program goals and in assessing the staff's knowledge of and skills with technology . Finally, this book can help you examine the general strengths and weaknesses of the present program.

Transition Stage

When a school writes its technology goals and plans, it enters the transition stage. It has passed the planning stage and yet has not had time to actually implement the plan. The concerns in the transition stage are general. For instance, what knowledge does the staff have or what are the general strengths and weaknesses of the program? What resources do we need to implement the plan?

Implementation Stage

A plan has been written, teachers have been trained, and equipment and other materials have been purchased, but has the plan been faithfully

implemented? This book assists the school in describing its current program and comparing that description with the planned program.

Figure 2-1 suggests questionnaires for different stages of program development. The top row describes the stages of development, and the bottom row suggests questionnaires for each stage. For instance, in the transition stage, use *Program Description, Staff,* and *Strengths and Weaknesses* questionnaires.

Planning Stage	Transition Stage	Implementation Stage
No written goals specific enough to guide the program, or goals need to be rewritten No written plan for achieving software goals, or the plan needs to be rewritten Few staff involved	Goals written Plan written	Goals and plan written Teachers trained Adequate hardware and other materials purchased
Suggested Questionnaires	**Suggested Questionnaires**	**Suggested Questionnaires**
Program Description *Goal* *Staff* *Plan* *Strengths & Weaknesses*	*Program Description* *Staff* *Strengths & Weaknesses*	*Program Description* *Implementation & Attainment* *Strengths & Weaknesses*

Figure 2-1. Selecting Questionnaires for Different Stages of Development

The stages above may not describe your evaluation situation. The *Program Description, Staff,* and *Strengths and Weaknesses* questionnaires, however, provide useful information for schools at any stage of development. An evaluation based on these questionnaires can be completed in about a dozen person hours, once this book has been read.

Your needs may be more focused or you may not have the time to complete a full evaluation. You may want to focus on one questionnaire, perhaps the *Staff Questionnaire.*

Evaluator Roles

After selecting questionnaires, you may find it helpful to select personnel to fulfill several evaluation roles. Leadership is the key evaluator role to ensure successful evaluation. The leader starts the evaluation and keeps it moving by helping people to work together and solve problems associated with the evaluation.

The coordinator organizes the evaluation, explains directions to the staff, distributes questionnaires, and picks them up. The report writer gathers the data from the evaluation, interprets the data, and communicates the results of the evaluation in a report. Finally, the clerical assistant duplicates questionnaires and tabulates data.

Evaluation roles may vary. In one school, the technology coordinator fills all the roles. In another school, the principal provides leadership and writes the report, while delegating coordination to a computer specialist and clerical duties to a secretary. In a third school, the technology committee provides leadership.

Next, it must be decided who completes the questionnaires. If the program is small and one person is familiar with the program, he or she may complete all the questionnaires on behalf of the school. If several people are involved in the program, they could divide the questionnaires among themselves so that each person fills in one questionnaire, thus dividing the work. In this case, different people answer the questionnaires on behalf of the school.

In a school where many teachers are participating in the technology program, one person or a group of people may not have enough information to complete all the questionnaires. Some of the questionnaires, such as the *Staff Questionnaire* and *Strengths and Weaknesses Questionnaire*, could be completed by each teacher. Then one evaluator or a group of evaluators compiles the individual questionnaires into a master list. Compilation forms for the *Staff Questionnaire* and *Strengths and Weaknesses Questionnaire* are found in the appendix.

The Schedule

A schedule for data collection and other activities can help keep the evaluation on track. The *Planning Questionnaire* includes a scheduling grid. Figure 2-2 shows a completed sample schedule. Each of the 12 entries in the figure represents about one hour of work.

12

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	P	P	AQ1		AQ3
2	AQ6		I	I	I
3	R	R		R	R
4					

Key P=Planning
I=Interpreting Data
R=Reporting Results

AQ#=Administer Questionnaire # (#=1-6)
1=*Program Description Questionnaire*
2=*Goal Questionnaire*
3=*Staff Questionnaire*
4=*Plan Questionnaire*
5=*Implementation and Attainment Questionnaire*
6=*Strengths and Weaknesses Questionnaire*

Figure 2-2. Sample Evaluation Schedule

The schedule shows that during Week 1, the evaluation was planned and Questionnaires 1 and 3 were administered. During Week 2, Questionnaire 6 was administered, and data interpretation took place on Wednesday, Thursday, and Friday. Finally, the report was written during Week 3. Your evaluation may require a longer or shorter period of time depending on information needs and other commitments.

Chapter 3

Collecting the Information

This chapter is divided into sections that help you first describe and then answer a number of questions about your current technology program. Each section is supported by a questionnaire located in the appendix.

The title of each section states the evaluation topic or question. A box highlights the associated questionnaire; which other questionnaires, if any, will provide helpful information to describe the program or answer the question; and a description of the resulting information.

Each section provides background information related to the evaluation topic or question. Relevant issues are discussed and potential problems are raised, along with possible solutions. The section also includes "Expanded Directions" that amplify the short directions in the questionnaire.

The Program Description

	Program Description Questionnaire
Related:	***Staff Questionnaire*** **(See the following "Instructional Delivery" section.)**
Results:	**Profile of school technology program, including equipment, facilities, and technology use by grade**

The *Program Description Questionnaire* provides background information for the evaluation and helps in completing other questionnaires, particularly the *Goal Questionnaire.*

As you complete the questionnaire, you may find some sensitive areas, especially when dealing with personnel. An accurate description of a program is important because program improvement depends on knowledge of the program being improved. Program evaluation, however, requires diplomacy in dealing with sensitive issues. Unnecessarily offending people can make it difficult to gather information and carry out evaluation recommendations.

You can encourage support for the evaluation effort by promoting good communication and involving others. By being approachable and by being involved with and supportive of others, you can lay the groundwork for positive communication. Then you can explain the evaluation procedures and point out that you are evaluating the program, not personnel.

You will find it helpful to involve others for several reasons. First, spreading the workload makes it easier for you. Second, people are more likely to support what they are a part of. Finally, it will encourage the implementation of the recommendations contained in the evaluation.

Expanded Directions

In developing a program description, consider the following questionnaire sections and choose those relevant to your needs.

Context

The context explores background information for the evaluation. Answer the following questions and consider the relevant issues as they relate to your technology program.

- ***Description of the school.*** How is your school unique in the district or community? How would you describe student learning? Does this have implications for student technology use?
- ***Description of the community.*** How strongly does your community support education? What implications does this have for technology use at your school?
- ***Description of the district.*** In general, how supportive has the district been in the instructional use of technology? What knowledge about your district would be helpful in relation to the use of technology?
- ***Financial outlook.*** Purchasing new hardware and providing inservice training can be expensive. The financial outlook of your school district and/or school can help you gauge the scope of recommendations for your technology program.

Distinctive Technology Use

What distinctive technology projects are in place? Do you have technology projects that are funded by grants or that are otherwise special?

Administration

Who is in charge of the various phases of the technology education program in your district or school? Delineate the roles for the principal, technology coordinator or specialist, media specialist, key teachers, and others.

Instructional Delivery

If your school serves more than three grade levels, you will need to make a blank copy of the "Technology Use by Grade Level" portion of the questionnaire. The data can be compiled in two ways. If only a few teachers are using technology, ask them what technology applications they use and enter the information directly. Otherwise, you can ask teachers to complete the staff questionnaire and get the information from the individual questionnaires.

The abbreviation codes help with entering data quickly. For entries other than those coded, you can make up your own abbreviations.

Hardware Inventory

Inventory the hardware in your school available for instructional use. This part of the questionnaire is divided into sections for listing computers and other equipment, such as printers, modems, or video equipment.

When giving the name of the computer include the model, for example, Apple IIGS, Macintosh LC, or IBM Model __. Specify memory using the number of K or M, such as 128 K or 4 M. Then, enter the number of disk drives and the size of disk used (5.25" or 3.5"). Specify the existence of a hard disk or network. Finally, specify the location of computers.

Follow similar procedures for inventorying other hardware. When entering the description for printers, some of the types are dot matrix, ink jet, and laser.

Goals

State, district, and/or building goals provide the direction and focus for the technology program. Attach a copy of any of your written goals to the *Program Description Questionnaire*. If you need new or revised building goals, you can later use the *Goal Questionnaire* to provide a list of prioritized goals. The background information in this report can assist in writing goals. For instance, the financial outlook section can help you decide whether or not to choose goals that are expensive to implement.

What Are Your Technology Goals?

	Goal Questionnaire
Related:	***Program Description Questionnaire***
Results:	**Goals listed in order of priority**

A goal statement specifies "who" will do "what" and "when." One example of "who" designates fifth-grade students. The "what" is the desired program achievement, for example, "complete a major writing assignment using word processing." The "when" section predicts a goal attainment date. A complete goal statement might read, "By 1994, all fifth graders will complete a major writing assignment using word processing." As you write goal statements, questions emerge concerning the "who," "what," and "when" parts of the goal statement.

- ***Who.*** At what ages will technology skills be introduced? How will the skills be developed from grade to grade? For instance, some teach keyboarding at only one grade level. Others introduce aspects of keyboarding in the early grades and teach more in subsequent grades.

- ***What.*** Are you going to specify an activity or a performance goal? An activity goal is easier to achieve because it specifies only that an activity takes place. The goal that students will receive training in word processing is an activity goal. Receiving training in word processing is the activity. No performance is required. The goal that students will complete a major writing assignment using word processing is a performance goal. Students must produce a paper. The training in word processing is assumed.

  How do you plan to verify goal attainment? For the goal of students receiving training in word processing, the verification could be a teacher statement that training took place. To prove that students completed a major writing assignment using word processing might require collecting a paper from each student. Verification of performance goals is more difficult, but reveals more about the technology program.

- ***When.*** How soon do you desire goal attainment? Purchasing hardware, software, and other materials, as well as providing training is expensive and time consuming. Will your school or district provide the resources to make the goal a reality?

Other Concerns

Technology goals do not exist in a vacuum. Issues of compatibility with other goals, feasibility, and competing priorities have to be confronted.

Compatibility

In most cases, technology goals should support non-technology goals. A district may not have goals that address word processing but may have goals related to improving student writing. The goal "By 1992, all fifth graders will type a one-page paper using word processing" supports the district's goal of improving student writing.

Feasibility

Goals may not always be achievable. One possible barrier is a lack of resources for purchasing equipment or training teachers. Other barriers include lack of support on the part of the administration or teachers.

Priority

You may have a series of goals that support non-technology goals and are individually feasible, but not feasible as a group. For instance, you may want to teach both keyboarding and word processing at the fifth-grade level, but have only enough computer lab time to teach one of them. You have to choose the goal with higher priority.

Figure 3-1 lists some technology goals and factors influencing the selection of goals. The goals state what will be achieved but not who will achieve them or when they will be achieved. The next column lists traditional goals supported by the technology goals. Then the grade levels to which the goals apply are given. These are general guidelines that may or may not apply to your students.

The next column suggests the times needed to achieve the various goals: the number of weeks of instruction and the amount of computer time per student per week. The estimate of computer time per student gives an idea of the computer arrangement needed, such as a classroom with one computer or a lab with 15 computers. If the amount of time needed per student is 30 minutes or less per week, a classroom with one computer is adequate. If 30–60 minutes per week are needed, then a setting with two or more computers is advisable. When more than one hour of computer time per week is needed, then a lab setting is advised. Of course, a lab setting is adequate, but not necessary, for all activities.

Goal	Traditional Goal	Grade to teach	Time Needed		Training Time for Teachers
			# Weeks	Per Week	
Create a picture using graphics software	Developing artistic expression	K-6	2	30 min. or less	1 hour
Keyboard at the speed of handwriting	Improving writing	4-6	6-8	2 hours	3 hours*
Type, edit, and print a paper using word processing	Improving writing	4-6	6-8	30-60 min.	5 hours
Manipulate information using a database	Practice problem solving	5-6	4-6	30 min. or less	5 hours
Produce a graph using graphing software	Drawing a graph	3-6	4	30 min. or less	5 hours
Practice problem-solving strategies using simulations and problem-solving software	Practice problem-solving strategies	K-6	2-4	30 min. or less	1 hour

*Assumes touch-typing ability of the person being trained.

Figure 3-1. Goal Chart

The last column in the chart estimates the number of hours of training needed for a teacher to master the software used in support of each goal. It is assumed that the teacher already can use the computer to load and use simple programs. The figures represent the number of hours needed for individual instruction at the computer plus some time for practice to feel comfortable using the software. For group instruction, the number of hours is greater. While the time can vary among individuals, the estimates

show the relative effort needed to learn to use the software. This gives an idea of the resources needed to provide training.

Using technology involves three levels of teacher learning. The first level is learning to use the software. This is represented by the time estimates in the chart. At the second level, the teacher learns to teach students to use the software. At the third level, new non-computer methods are learned for teaching the underlying subject. For instance, using word processing in a writing class can affect the way writing is taught.

You may have problems writing goals. If you feel that you need more help than this guide offers, consider other resources, such as another person or group of people who have the knowledge you need. You may be able to find them within your own school district. Other good resources are books, such as *Long-Range Planning for Computers in Schools* by David Moursund and Dick Ricketts, and magazines in the computer education field. Attending computers-in-education conferences, workshops, and classes can provide further assistance.

Writing goals that all people in your building can agree on or accept may be another problem. A possible solution is to give teachers a choice of goals they can pursue.

Expanded Directions

Duplicate enough blank copies of the questionnaire for your technology goals. Then attach a copy of applicable state and district technology goals. To write goals, you may find it helpful to express them in the form: By (date), (someone) will (do something). For each goal, rate its priority. A high-priority goal is most important. A low priority goal is less important. Then describe the evidence of goal attainment.

The next section on the questionnaire asks if you have the resources to achieve the goal. First, check the adequacy of hardware, for example, a computer and printer. Next, mark the adequacy of software and printed materials. For instance, do you have enough legal copies? Does the staff that will provide instruction in the activities have adequate training?

The last section is for comments about any answers that need further explanation or for comments not covered by the ratings.

What Technology Skills and Knowledge Does Your Staff Have?

	Staff Questionnaire
Related:	**None**
Results:	**Profile of technology skills, list of training needs**

The staff, including teachers and aides, is the key resource in developing a technology program because the staff not only works with the students while they use technology but also teaches the skills that the technology reinforces. For instance, word processing assists students in their writing, but it is the teacher who provides the actual writing instruction. Most importantly, it is staff that decides when to use technology for instruction and when to use traditional methods.

Typically, teachers go through three stages in developing technology skills. In the first stage, they use the technology themselves. For example, they use word-processing software to type materials and worksheet-generator programs to produce worksheets and puzzles. Perhaps they also use a gradebook program. In stage two, they use technology for instructional purposes but as an add-on to the existing program. Students use technology as a reward for doing their work or for remediation and enrichment. In stage three, teachers find ways to integrate technology instruction with existing instruction.

Expanded Directions

You can complete the *Staff Questionnaire* in two ways. If only a few of the staff use technology, you can interview them and complete the questionnaire for them. Then you can explain unfamiliar terms and skip items that do not apply. If more than a few of the staff use technology, they can complete the questionnaires themselves.

Not all the types of technology-related skills mentioned on the questionnaire may be familiar to a person completing it. The following explanations may be helpful.

- ***Creating a data disk.*** Formatting or initializing a disk prepares it to receive further data.

- ***Graphics software.*** Graphics software is of two types. The first type provides ready-made graphics for producing cards, posters, banners, and so on. More sophisticated graphics software allows the user to create designs using lines and other shapes.
- ***Instructional software.*** Drill and practice software gives practice in skills already learned. Tutorial software teaches new skills. Simulation software recreates processes or events, often in the form of a game.
- ***Touch typing at least 20 words per minute.*** Typing can be done either on a typewriter or computer.
- ***Word-processing software.*** Basic skills include entering text into the computer, correcting mistakes, and saving, retrieving, and printing the text.
- ***Database software.*** A database organizes large amounts of information and allows the user to enter information into categories. Then the information can be sorted and printed and terms can be retrieved from the database by specifying categories.
- ***Programming.*** Writing and running a computer program.
- ***Grade-keeping software.*** The software stores, calculates, and prints student grades.
- ***Modem and communications software.*** Allow a computer with modem to communicate with an information service or another computer or to send electronic mail.
- ***Peripheral input/output devices.*** For example, the computer might gather and analyze temperature data through a probe or control an external device, such as a robot.
- ***Desktop publishing.*** Creating documents, such as newsletters, using multiple-column layouts with graphics.
- ***Multimedia.*** Combine the computer and appropriate software with a CD-ROM or videodisk player for audiovisual presentations.
- ***Video camera.*** For instance, use the camera to tape student projects.
- ***Video-editing equipment.*** Combine tape from several sources to prepare a finished tape.

What Is Your Plan?

	Plan Questionnaire
Related:	***Program Description Questionnaire, Goal Questionnaire, Staff Questionnaire***
Results:	**Technology Plan with activities and needed resources**

The goals of the program show what is important to achieve. The plan outlines a strategy for achieving the goals. For each goal, it lists activities leading to meeting the goal and additional resources that will be required.

Expanded Directions

Make one copy of the blank questionnaire for each goal. Use the *Goal Questionnaire* to find the goal, targeted grades, and evidence that the goal has been achieved. Then, write the activities that will be needed to teach the skills and knowledge necessary to achieve the goal. Be as specific as possible. Include the grade level where the activity will occur.

Next, enter the staff training needed to teach the activities. Use the completed *Staff Questionnaire* as a guide to present staff knowledge. Now, enter the additional hardware needed. The existing hardware is listed in the *Program Description Questionnaire*.

Then list the additional software needed. The *Goal Questionnaire* should tell you if your present software is adequate for meeting the goal. Finally, specify the printed material necessary to meet the goal. In the case of both the software and the printed material, allow for the cost of legal copies.

Have You Implemented Activities as Planned? What Progress Have You Made Toward Meeting Goals?

	Activity Implementation and Goal Attainment Questionnaire
Related:	**None**
Results:	**List of goals implemented/met, reasons goals not implemented/met, recommendations for improvement**

After the technology plan has been written and been in effect for at least a year, you may want to determine the extent to which goal-related activities took place and/or goals were attained. For instance, the goal may be for fourth graders to keyboard as fast as they can write. The first concern is to verify keyboarding instruction along with the amount of instruction received. The next concern is the extent to which the keyboarding goal was met.

The activities implemented and goals met can be tabulated on copies of the *Activity Implementation and Goal Attainment Questionnaire*. One copy of the questionnaire is needed for each goal. If the number of teachers involved in technology is small, one person could go to the other teachers and ask them for the needed information. If the number of teachers involved is large, several people could each get the information needed to compile one questionnaire.

Expanded Directions

Make one copy of the questionnaire for each technology goal. On each questionnaire, enter the goal, the applicable grades, and the evidence of attainment.

For each class affected by the goal, enter the amount of instruction received using time units such as minutes, hours, or class periods. Next, enter the percentage of the class meeting the goal. If not measuring goal attainment, enter "na." Then, enter the code for the content area in which the skill was taught and who taught the skill. Finally, enter the code for further resources needed, if any.

What Are the Strengths and Weaknesses of Your Program?

Strengths and Weaknesses Questionnaire	
Related:	**None**
Results:	**List of specific strengths and weaknesses**

Up to this point, the evaluation has focused on planning goals, implementing goal-related activities, and measuring goal attainment. Program evaluation can, however, function in the absence of goals. General issues can be examined independent of specific goals.

One issue is the general attitude of those participating in or affected by the technology program. Do they support the program? Another issue is the management of the program. For instance, do teachers have access to technology when needed? Another issue is whether students learn better when using technology. Another area examines what people consider the strengths and weaknesses of the program.

Expanded Directions

You will need one copy of the questionnaire for each person completing it. Ideally, administrators, teachers, students, parents, and other members of the community will be consulted for their perceptions of the school technology program. Depending on time constraints, one or several people may complete this questionnaire. If only a few people are consulted, they also should represent the opinions of missing groups.

Chapter 4

Analyzing the Data

The completed questionnaires contain valuable information ready to be analyzed or interpreted. The purpose of analysis and interpretation is to answer the evaluation questions and adopt recommendations for further action. Most of the following sections discuss a questionnaire in terms of interpretation, conclusions, and recommendations.

Program Description Questionnaire

This questionnaire contains background information useful for interpreting the other questionnaires and for writing the final report. Interpretation, conclusions, and recommendations will not be discussed for this questionnaire.

Goal Questionnaire

The planning stage has produced a series of goals. The purpose of this analysis is to examine the appropriateness of the goals set.

Interpretation

If more than one person has completed the questionnaire, you may find it helpful to compile a list of goals, eliminating any duplicates. Now, look for conflicts among goals. School goals may conflict with district goals. Some goals may conflict with each other. For instance, the goal of having students use word processing extensively in the fifth grade may conflict with the goal of having students become proficient in Logo programming in the fifth grade. Resolving the conflict may require eliminating some goals or scheduling them for different grades.

Next, check for goals that are of high priority but for which there are insufficient resources in hardware, software, support materials, and/or teacher skills. To resolve the disparity, either the goal or level of resources may have to change.

Increasing the level of funding could reduce the disparity, but may not be possible. If so, possible options are reducing the priority of the goal to pursue it later and attempting to use present resources more effectively.

Conclusions

A prioritized list of goals provides the conclusion for this section.

Recommendations

If the results of this analysis show that resources are insufficient to support some of your present goals, or suggest a particular goal is no longer important, then you may recommend a change in goals at either the school or the district level.

You may recommend an increase in funds to purchase more hardware or software. The financial outlook section in the *Program Description Questionnaire* might indicate whether seeking more funds is practical.

You may suggest a different use of present resources. If you have a technology lab, you might decide to distribute the computers to teachers' rooms. If all the computers are in teachers' rooms, you may decide to move the computers into one room to make a lab.

Staff Questionnaire

Analysis of this questionnaire produces a composite picture of the staff's knowledge of technology and of the types of technology use in classrooms.

Interpretation

If more than one person completed the questionnaire, compile the individual responses using the *Staff Compilation Form*. The information from questions 17 through 28, which ask about actual classroom technology use, can be transferred to the "Technology Use by Grade Level" section of the *Program Description Questionnaire*. Analysis of the compilation form and a list of goals will reveal training needs for the staff.

Conclusions

From this questionnaire, specific areas of staff technology strengths and weaknesses can be identified.

Recommendations

Recommendations can be made for further staff training in specific areas.

Activity Implementation and Goal Attainment Questionnaire

An examination of this questionnaire can verify that skills leading to goal attainment have been taught and/or a goal has been attained.

Interpretation and Conclusions

For each goal, note the match between what was planned, what was implemented, and what was achieved. Where activities were not implemented and/or goals were not met, decide what resources are needed to achieve them.

Recommendations

Make recommendations for resolving the discrepancy between planned and actual activities. One possible strategy is to provide better access to training, hardware, software, and printed materials. Another strategy is to change the goal. Perhaps the goal is unrealistic, given present circumstances or resources.

Strengths and Weaknesses Questionnaire

Analysis of this questionnaire furnishes general perceptions of the technology program apart from goal achievement.

Interpretation

If more than one person completed the questionnaire, compile the individual responses using the *Strengths and Weaknesses Compilation Form*.

Conclusions

Statements with the highest level of agreement and positive comments indicate strengths of the program. Weaknesses are suggested by statements with the lowest level of agreement and by negative comments. Negative comments/ratings by one or two people, however, may represent personal opinions and not program weaknesses.

Recommendations

Filter the suggestions for improvement to get one set of recommendations. Carefully consider negative ratings/comments to find more recommendations. For instance, one program weakness may be that teachers have poor access to technology. A possible recommendation is to manage the existing resources better. Another recommendation may be to purchase more technology.

Chapter 5

Reporting the Results

The evaluation report summarizes the findings of the evaluation by answering some basic questions:

- Why was the evaluation done?
- How is the program functioning now?
- What evaluation questions were asked?
- What were the answers to the evaluation questions?
- What recommendations should be made for future action?

Reasons for the Evaluation

In one paragraph, state the reasons for conducting the evaluation. Here are some possible reasons:

- New programs are routinely evaluated.
- The superintendent/principal/technology committee requested an evaluation.
- The evaluation was conducted as part of a larger evaluation of all school programs.

Program Functioning

Summarize the parts of the *Program Description Questionnaire* pertinent to the evaluation. The purpose for conducting the evaluation will suggest a level of detail and choice of points to emphasize. Here are some points to consider:

- goals of the program (Unless they will be discussed later in the report.)
- technology use by grade
- special technology projects or uses

Evaluation Questions

List the evaluation questions guiding this evaluation. The complete list of questions is

- What are your technology goals?
- What technology skills and knowledge does your staff have?
- What is your plan?
- Have you implemented activities as planned? What progress have you made toward meeting goals?
- What are the strengths and weaknesses of your technology program?

Answers to Evaluation Questions

The answers for each question come from the interpretation of an appropriate questionnaire. (See Chapter 4.) For each question, summarize the conclusions, depending on the level of detail required for the report. Add any general conclusions not already mentioned.

Recommendations

Summarize the recommendations from each evaluation question answered. The recommendations are stronger if they follow logically from conclusions already mentioned. As an example, consider the following conclusions:

- Only 10 percent of the teachers can use a database.
- Adequate computers and database software exist.
- The top priority goal is for students to use a database.

The recommendation that might follow is to provide teacher training in database use.

Appendix

Evaluation Questionnaires

Planning Questionnaire

Directions: For each evaluation role, mark the initials of the person who will fill the role.

_____ 1. Provide leadership

_____ 2. Coordinate the evaluation

_____ 3. Write the report

_____ 4. Assist with clerical help

For each questionnaire you will use, mark the initials of the person who will complete the questionnaire. If more than one person will complete a questionnaire, mark "C" for "composite." You will probably not use all questionnaires.

_____ 1. *Program Description Questionnaire*

_____ 2. *Goal Questionnaire*

_____ 3. *Staff Questionnaire*

_____ 4. *Plan Questionnaire*

_____ 5. *Activity Implementation and Goal Attainment Questionnaire*

_____ 6. *Strengths and Weaknesses Questionnaire*

Use the codes below to complete the time schedule for the evaluation. When entering the code for "Administer Questionnaire," enter "AQ" and then the number of the questionnaire—for instance, "AQ3" for "Administer the *Staff Questionnaire.*"

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1					
2					
3					
4					

Key

P=Planning
I=Interpreting Data
R=Reporting Results

AQ#=Administer Questionnaire # (#=1-6)
CQ#=Compile Questionnaire # (#=1-6)
1=*Program Description Questionnaire*
2=*Goal Questionnaire*
3=*Staff Questionnaire*
4=*Plan Questionnaire*
5=*Implementation and Attainment Questionnaire*
6=*Strengths and Weaknesses Questionnaire*

Program Description Questionnaire

Context of the School

1. What makes your school distinctive in the community/district?

   _____

   _____

   _____

2. What is the average student achievement compared to surrounding schools?

   Below average ___ Average ___ Above average ___

3. How supportive has your school been in the instructional use of technology?

   Not supportive ___ Somewhat supportive ___ Very supportive ___

4. Describe this support or lack of it.

   _____

   _____

   _____

5. What can you add about your school that might be helpful in a program evaluation of technology integration?

   _____

   _____

   _____

Community

6. How strongly does your community support education?

   _____

   _____

   _____

7. What implications does this have for technology integration at your school?

_____

_____

_____

District

8. How supportive has the district been in the instructional use of technology in your school?

Not supportive ___ Somewhat supportive ___ Very supportive ___

9. Describe this support or lack of it.

_____

_____

_____

10. What other information related to district support of technology can you provide?

_____

_____

_____

Financial Outlook

Considering the financial outlook for the next several years, rate the ability of the district/ school to make the following expenditures, based on the scale below:

1=unable 2=able, but reluctant 3=eager

11.	Maintain current hardware	1 2 3
12.	Buy new hardware	1 2 3
13.	Buy new software	1 2 3
14.	Buy other instructional materials	1 2 3
15.	Provide inservice training of staff	1 2 3
16.	Update facilities	1 2 3

17. What type of general curriculum project is your district most willing to fund?

_____

_____

_____

Distinctive Technology Use

18. Describe any special technology projects at your school.

_____

_____

_____

_____

_____

_____

Administration

19. What are the names and responsibilities of key district/school level people involved in the technology-integration program?

Name	Responsibility
1.	
2.	
3.	
4.	

Technology Use by Grade Level

Grade	Rm #	Technology Use(s)	Content Area(s)	Taught by

Key

DB=Database
DTP=Desktop Publishing
GR=Graphics
IS=Instructional Software
KB=Keyboarding
MM=Multimedia
PR=Programming
TC=Telecommunications
VI=Video
WP=Word Processing
OT=Other (specify)

AR=Art
MA=Math
RL=Reading, Lang. Arts
SC=Science
SS=Social Studies
OT=Other (specify)

SE=Self
AT=Another Teacher
MP=Media Person
RT=Resource Teacher
TS=Technology Specialist
OT=Other (specify)

Hardware Inventory

Number	Brand & Model	Configuration	Memory	Drives	Location

Key

S=Standalone
N=Networked
F=File Server

3=3.5" Floppy
5=5.25" Floppy
HD=Hard Disk

L=Lab
M=Mobile
MC=Media Center
C=Class

Other Equipment

Number	Brand	Model	Description	Location

Goal Questionnaire

Goal: _____

_____

Priority: low ___ medium ___ high ___

How verified? _____

_____

_____

Hardware is adequate. Yes ___ No ___ Will obtain ___ Not applicable ___

Software is adequate. Yes ___ No ___ Will obtain ___ Not applicable ___

Support materials are adequate. Yes ___ No ___ Will obtain ___ Not applicable ___

Teachers are adequately trained. Yes ___ No ___ Will train ___ Not applicable ___

Recommendations: Keep goal ___ Change goal ___ Delete goal ___

Comments: _____

_____

_____

_____

_____

Staff Questionnaire

1. Grade level or subject taught _____

Please rate your ability to perform computer-related tasks. Use the following rating scale:

4 = am proficient
3 = can get by
2 = can do a little
1 = haven't learned yet
NA = not applicable

	LEVEL
2. Format (initialize) a blank disk	NA 1 2 3 4
3. Create a picture or poster using graphics software	NA 1 2 3 4
4. Use instructional software	NA 1 2 3 4
5. Touch type at least 20 words per minute	NA 1 2 3 4
6. Type, edit, and print a paper using a word processor	NA 1 2 3 4
7. Enter, sort, and print a list using a database	NA 1 2 3 4
8. Program in Logo, BASIC, or other computer language	NA 1 2 3 4
9. Use grade-keeping software	NA 1 2 3 4
10. Use a modem and communications software	NA 1 2 3 4
11. Send and receive information through peripheral input/output devices, for instance, a temperature or motion sensor or a synthesizer	NA 1 2 3 4
12. Use desktop-publishing software to create a newsletter	NA 1 2 3 4
13. Use hypermedia software, such as *HyperCard, LinkWay,* or *HyperStudio*	NA 1 2 3 4
14. Use a video camera in the classroom	NA 1 2 3 4
15. Use video-editing equipment	NA 1 2 3 4
16. Use multimedia hardware and software	NA 1 2 3 4

Please rate your agreement or disagreement with statements given.

	AGREEMENT
17. There is adequate time in the curriculum to use technology.	yes no
18. There is adequate time to produce technology-related lessons.	yes no
19. Access to technology is sufficient.	yes no
20. Access to appropriate software is sufficient.	yes no
21. I can find help when I don't understand technology.	yes no

Complete the table below by circling "yes" for each type of technology used by a majority of your students, whether you or someone else teaches its use, and "no" where your students do not use it. For each "yes" answer, identify the content area and who teaches the application. The codes at the bottom of the table may be helpful.

Technology Application	Whether Used		Content Area	Who Teaches
22. Database	yes	no		
23. Desktop Publishing	yes	no		
24. Graphics	yes	no		
25. Hypermedia	yes	no		
26. Instructional Software	yes	no		
27. Keyboarding	yes	no		
28. Multimedia	yes	no		
29. Programming	yes	no		
30. Telecommunications	yes	no		
31. Video	yes	no		
32. Word Processing	yes	no		
33.	yes	no		

Key

AR=Art
MA=Math
RL=Reading, Lang. Arts
SC=Science
SS=Soc. Studies
OT=Other (specify)

SE=Self
AT=Another Teacher
MP=Media Person
RT=Resource Teacher
TS=Technology Specialist
OT=Other (specify)

34. What further training would be most helpful to you?

Staff Compilation Form

Directions: Use hash marks to indicate the number of responses from each category of the *Staff Questionnaire*.

1. Grade level or subject taught

K	1 - 2	3 - 4	5 - 6	Other

Read. Lang.	Math Science	Soc. Stud.	Art Music	Other

	Ability Level		
	NA	Little (1-2)	Much (3-4)
2. Format (initialize) a blank disk			
3. Create a picture or poster using graphics software			
4. Use instructional software			
5. Touch type at least 20 words per minute			
6. Type, edit, and print a paper using a word processor			
7. Enter, sort, and print a list using a database			
8. Program in Logo, BASIC, or other computer language			
9. Use grade-keeping software			
10. Use a modem and communications software			
11. Send and receive data through peripheral input/output devices, for instance, a temperature or motion sensor			
12. Use desktop-publishing software to create a newsletter			

	Ability Level		
	NA	Little (1-2)	Much (3-4)
13. Use hypermedia software, such as *HyperCard*, *LinkWay*, or *HyperStudio*			
14. Use a video camera in the classroom			
15. Use video-editing equipment			
16. Use multimedia hardware and software			

	AGREEMENT	
	yes	no
17. There is adequate time in the curriculum to use technology.		
18. There is adequate time to produce technology-related lessons.		
19. Access to technology is sufficient.		
20. Access to appropriate software is sufficient.		
21. I can find help when I don't understand technology.		

22-33. Use the "Technology Use by Grade Level" section of the *Program Description Questionnaire* for summarizing responses.

34. What further training would be most helpful to you?

Summarize responses on a separate sheet.

Plan Questionnaire

Goal: _____

_____

Targeted Grades: K 1 2 3 4 5 6

Evidence of Attainment: _____

_____

Activities to Support the Goal	Grade Level

Further Staff Training Needed to Meet This Goal: _____

_____

_____

_____

_____

Additional Computer and/or Other Hardware Needed to Meet This Goal: _____

_____

_____

_____

_____

Additional Software Needed to Meet This Goal: _____

_____

_____

_____

_____

Additional Printed Material Needed to Meet This Goal: _____

_____

_____

_____

_____

Activity Implementation and Goal Attainment Questionnaire

Goal: _____

_____

Targeted Grades: _____

Evidence of Attainment: _____

_____

Grade	Rm#	Amount of Instruction	Goal Met (% of Class)	Content Area	Taught by	Further Resources Needed

Key

AR=Art
MA=Math
RL=Read,Lang Arts
SC=Science
SS=Soc. Studies

SE=Self
AT=Another Teacher
MP=Media Person
RT=Resource Teacher
TS=Technology Specialist
OT=Other (specify)

Strengths and Weaknesses Questionnaire

Please rate your level of agreement or disagreement with statements given. Use the following rating scale:

4 = complete agreement
3 = slight agreement
2 = slight disagreement
1 = complete disagreement
0 = don't know

1. Administrators are generally supportive of technology integration. 0 1 2 3 4
2. Teachers are generally supportive of technology integration. 0 1 2 3 4
3. Students are generally supportive of technology integration. 0 1 2 3 4
4. The community is generally supportive of technology integration. 0 1 2 3 4
5. Teachers have easy access to hardware. 0 1 2 3 4
6. Teachers have easy access to software. 0 1 2 3 4
7. Teachers have easy access to technology-related printed material. 0 1 2 3 4
8. School personnel use only legal copies of software. 0 1 2 3 4
9. School personnel use only legal copies of printed material. 0 1 2 3 4
10. No groups are excluded from use of technology. 0 1 2 3 4
11. Technology is helping students to develop problem-solving skills. 0 1 2 3 4
12. Technology is helping students become better writers. 0 1 2 3 4
13. Students are learning other things that they could not learn as well without using technology. Explain: 0 1 2 3 4

_____

_____

_____

_____

14. What are the strengths of the technology integration program? _____

15. What are the weaknesses of the technology integration program? _____

16. What are your other perceptions of the technology integration program? _____

17. What are your suggestions for improving the program? _____

Strengths and Weaknesses Compilation Form

Directions: Use hash marks to indicate the number of responses from each category of the *Strengths and Weaknesses Questionnaire.*

	Level of Agreement		
	Don't Know	Little (1-2)	Much (3-4)
1. Administrators are generally supportive of technology integration.			
2. Teachers are generally supportive of technology integration.			
3. Students are generally supportive of technology integration.			
4. The community is generally supportive of technology integration.			
5. Teachers have easy access to hardware.			
6. Teachers have easy access to software.			
7. Teachers have easy access to technology-related printed material.			
8. School personnel use only legal copies of software.			
9. School personnel use only legal copies of printed material.			
10. No groups are excluded from use of technology.			
11. Technology is helping students to develop problem-solving skills.			
12. Technology is helping students become better writers.			
13. Students are learning other things that they could not learn as well without using technology. Summarize explanations on another sheet.			

14.-17. Summarize comments on another sheet.

Put the Future of Education in Your Hands...

Edutrends 2010
Restructuring, Technology, and the Future of Education
Education, Technology, and Paradigms of Change for the 21st Century
David D. Thornburg, Ph.D.

Pick up David Thornburg's visionary books that explore the social and technological trends shaping education.

Edutrends 2010—Restructuring, Technology, and the Future of Education

Thornburg examines the recent flurry of teacher bashing, moving from the reasoning flaws of those who would dismantle U.S. public education to the change process necessary for educational restructuring for the 21st century.

He proposes a way to think intelligently about the future while we reshape education to meet the needs of our society.

Education, Technology, and Paradigms of Change for the 21st Century

Learn unique patterns of thinking that encourage students to go above and beyond the three Rs. The technologies of calculators, computers, laser discs, and video games converge with new concepts of learning and intelligence to provide unprecedented opportunities for all students. Let this progressive book lead you toward a future filled with new paradigms.

International Society for Technology in Education
1787 Agate Street, Eugene, OR 97403-1923
Order Desk: 800/336-5191 Fax: 503/346-5890

Make This Step Your Next Step.

You've got your new Mac... Now what?

You want to know what those cute icons mean. You need to find out how to use that mouse-thing-a-ma-jig.

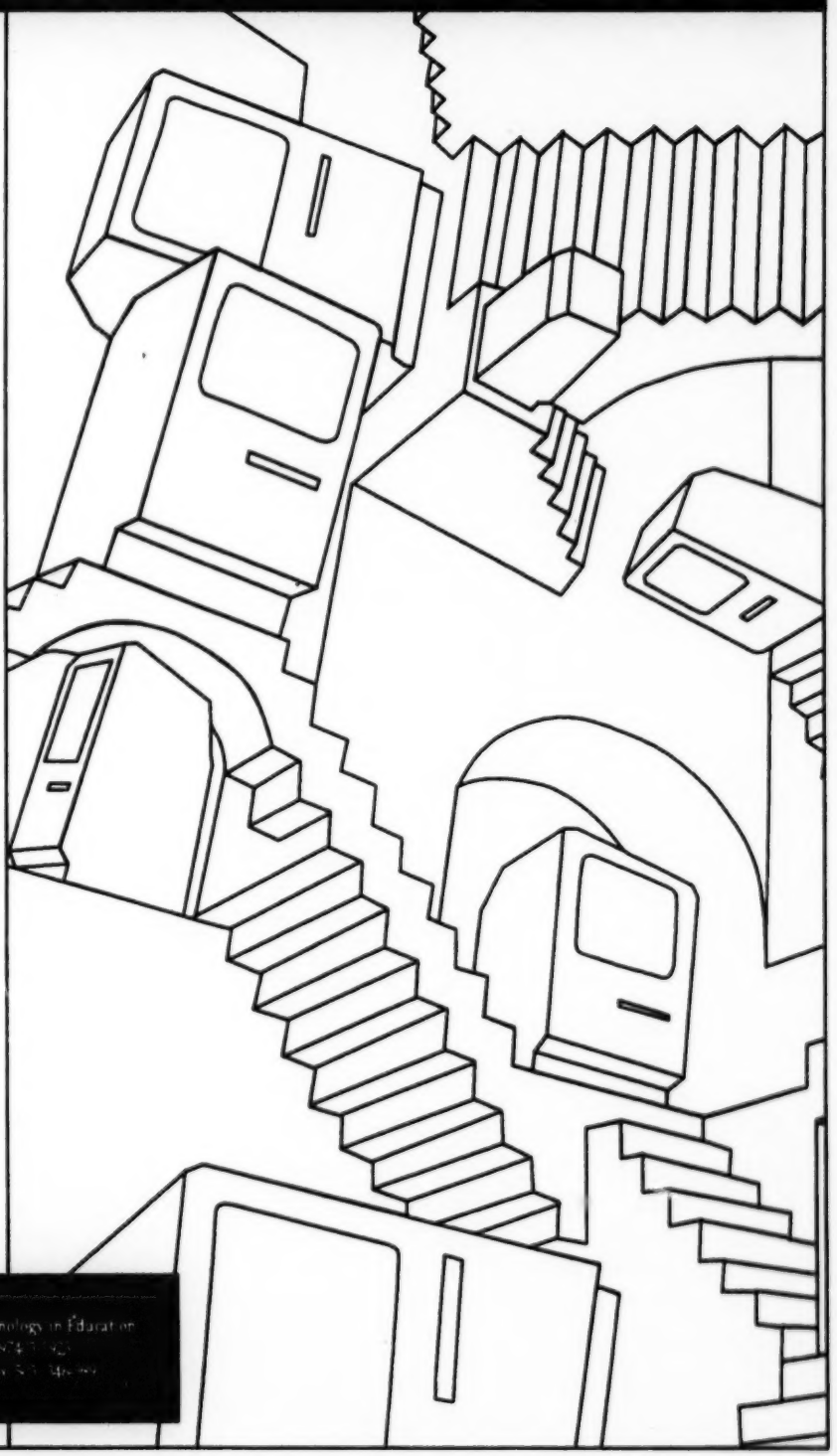
You'd like to know how to "empty the trash," and it'd be great to understand exactly what the "chooser" chooses.

By following the footsteps in ISTE's new book, *Macintosh Step by Step*, you'll pick up on all these basic Macintosh operating procedures, plus more—from finding the "power" button to demystifying the little Apple menu in the upper left corner.

And it also teaches you the theory behind Mac file storage and the importance of backing up your data on a regular basis.

In all, you'll find that this simple, illustrated guide will lead you on your way toward becoming a Mac user—not just a Mac owner.

Just call today and make your next computing step a step in the ISTE direction.



ISTE International Society for Technology in Education

All you need is the right tool...

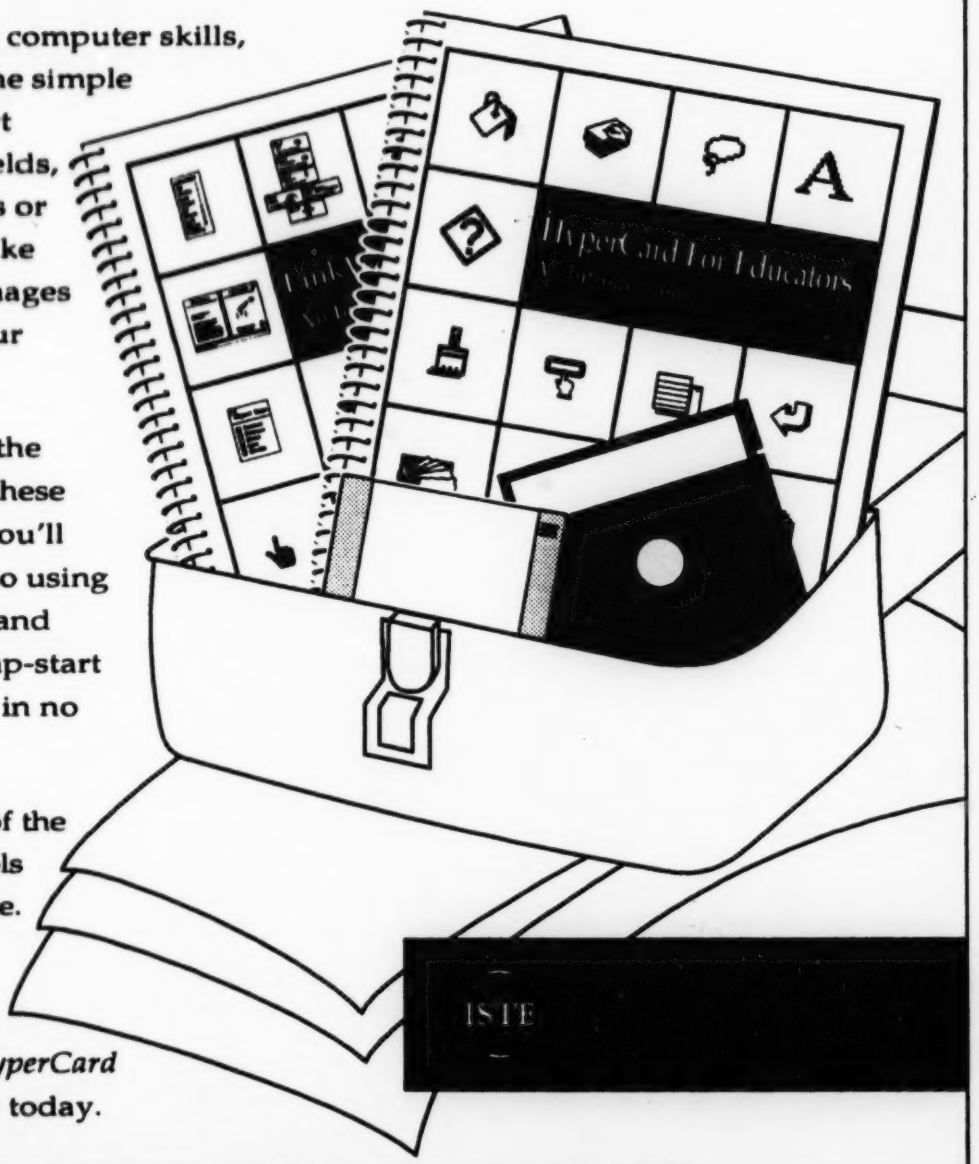
With either *HyperCard for Educators* (Macintosh) or *LinkWay for Educators* (MS-DOS) as an introduction to the interactive world of hypermedia, you can learn to build libraries of knowledge suitable for both classroom and personal use.

If you have basic computer skills, you can follow the simple tutorials and start using buttons, fields, and backgrounds or base pages to make your data and images come alive in your classroom.

By starting with the foundation that these books provide, you'll be on your way to using sounds, images, and animation to jump-start your curriculum in no time!

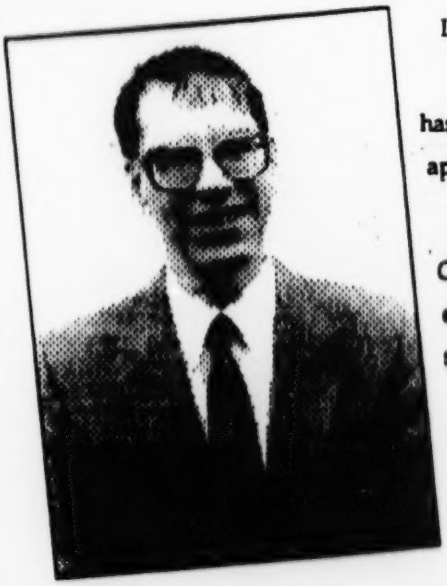
Take advantage of the organizational tools computers provide.

Call ISTE to order and begin building your *HyperCard* or *LinkWay* skills today.



BEST COPY AVAILABLE

Dave Moursund knows...



ISTE Executive Officer Dave Moursund is dedicated to improving education.

Since he first began working with computers in education in 1963, Dave has constantly sought to improve education at all levels through the use of appropriate computer-related technology.

As a continuing part of this effort, Dave's newest book—*The Technology Coordinator*—discusses the goals of education and how teachers and teachers of teachers can join in the enormous change process facing today's schools.

This book was written for educators who want to play a leadership role in the instructional use of technology. Dave uses interviews with technology coordinators to illustrate the needs, roles, and qualifications needed to accomplish the goals of educational technology.

In recent years, Dave has focused much of his writing efforts on problem solving and on staff development. Some of Dave's other books also available from ISTE include *Problem-Solving Models for Computer Literacy*, *LogoWriter for Educators: A Problem Solving Approach*, *Logo PLUS for Educators: A Problem Solving Approach* (co-authored with Sharon Yoder), and *Effective Inservice for Integrating Computer-as-Tool into the Curriculum*.

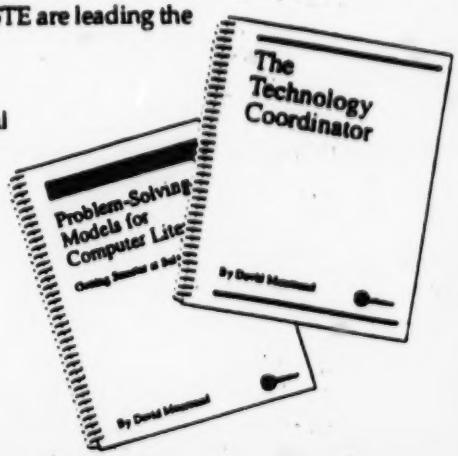
"Our educational system is not nearly as good as it could be," says Dave. "We know that computer-related technology can make substantial contributions to improving both the content of the curriculum and the instructional delivery system. Such technology can empower students and teachers."

ISTE believes that computer-related technology must become a tool that students and teachers use routinely if students are to be adequately prepared for adult citizenship in our Information Age society.

ISTE's wide range of periodicals, publications, projects, and other activities mirrors this vision and commitment.

Call us today to order Dave's latest books, and discover how he and ISTE are leading the way for the educators and school systems of tomorrow.

ISTE. Proudly putting you in touch with the world of educational technology.



International Society for Technology in Education
1787 Agate Street, Eugene, OR 97403-1923
Order Desk: 800/336-5191 Fax: 503/346-5890

BEST COPY AVAILABLE

ISTE BRINGS THE WORLD OF TECHNOLOGY CLOSER TO YOU.

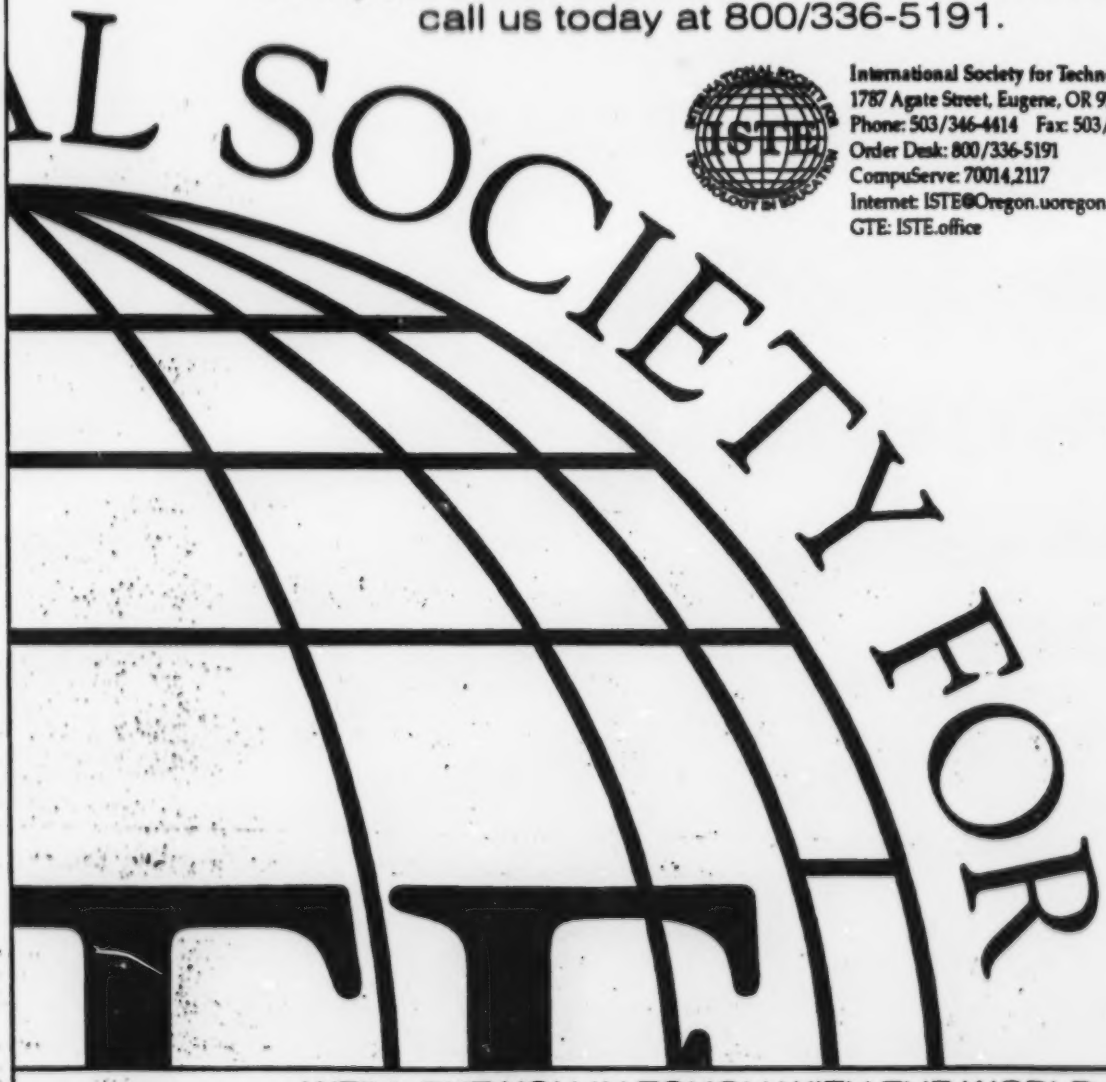
By drawing from the resources of committed professionals worldwide, ISTE provides support that helps educators like yourself prepare for the future of education.

ISTE members benefit from the wide variety of publications, specialized courseware, and professional organizations available to them.

They also can enjoy exciting conferences, global peer networking, and mind-expanding independent study courses.

So if you're interested in the education of tomorrow, call us today at 800/336-5191.

International Society for Technology in Education
1787 Agate Street, Eugene, OR 97403-1923
Phone: 503/346-4414 Fax: 503/346-5890
Order Desk: 800/336-5191
CompuServe: 70014,2117
Internet: ISTE@Oregon.uoregon.edu
GTE: ISTE.office



WE'LL PUT YOU IN TOUCH WITH THE WORLD.

BEST COPY AVAILABLE